

# **School Infrastructure NSW**

**Centre of Excellence in Agricultural Education (CoE)**

**Flood Emergency Management Report**

**20-307 | 28<sup>th</sup> April 2021 | SSDA Submission**

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# Document control

Rev	Date	Revision details	Approved	Verified	Prepared
A	28.04.21	SSDA Submission	JAS	JC	AP

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# List of Abbreviations & Acronyms

AEP	-	Annual Exceedance Probability
AHD	-	Australian Height Datum
ARI	-	Average Recurrence Interval
BoM	-	Bureau of Meteorology
ha	-	Hectares
PMF	-	Probable Maximum Flood
RL	-	Reduced Level
RMS	-	NSW Roads and Maritime Services
SES	-	State Emergency Service

# 1.0 Introduction

Woolacotts Consulting Engineers have been engaged by the Department of Education (DoE) to prepare an Integrated Water Management Report for the proposed Centre of Excellence in Agricultural Education (CoE).

The new proposed Centre of Excellence in Agricultural Education (CoE) is to be located within the Western Sydney University site off Vines Drive, Richmond ('The Site'). Londonderry Road is located to the west of The Site and Vines Drive is located to the north-east of The Site. The total lease area is approximately 11.37ha. Refer to Figure 1 below for the site location and extent.

The proposed high school includes a single-story complex of 6 buildings and ancillary structures located mainly over the eastern side of the site.

The purpose of this Flood Emergency Management Plan is to:

- Raise awareness of the existing flood behaviour for the site
- Allow for effective preparation for a flood emergency
- Provide CoE personnel and others with a clear understanding of how to respond before, during and after a flood event
- Ensure the safety of CoE personnel and others before, during and after a flood event



**Figure 1 – Site location**

## 2.0 Proposed Development

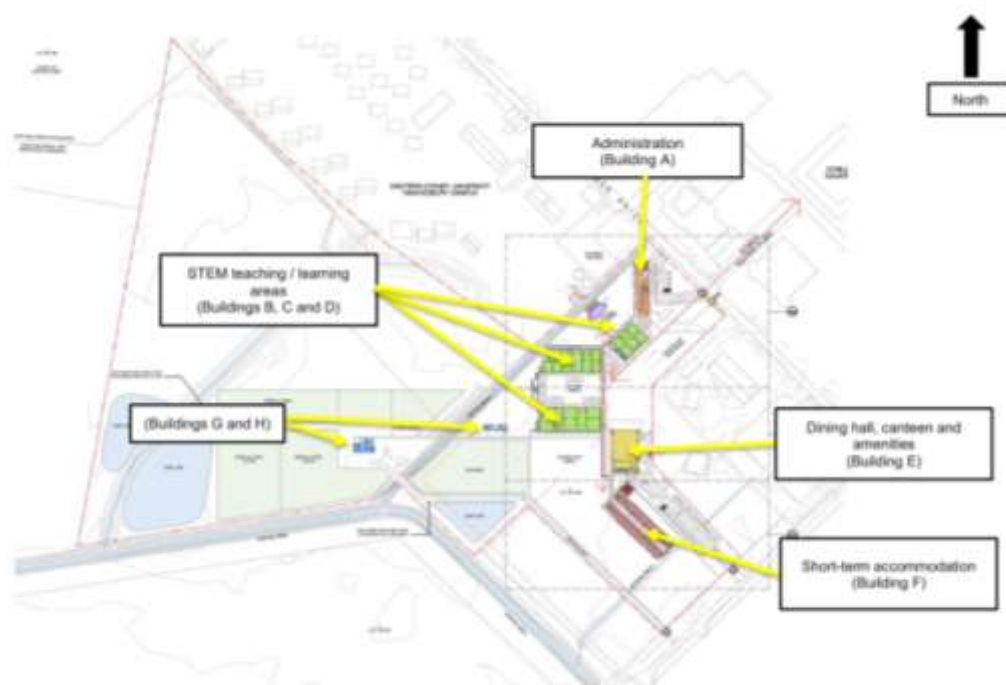
The proposed development involves the construction and operation of a new Centre of Excellence (CoE) in Agricultural Education on a leased land parcel within the Western Sydney University (Hawkesbury Campus) site, Richmond NSW.

The CoE will provide new agricultural / STEM teaching facilities with general learning and administration spaces to be utilised by rural, regional, metropolitan and international school students. The CoE will accommodate up to 325 students and up to 32 employees consisting of farm assistants, administration staff and teachers and up to eleven (11) itinerant staff members. The CoE will also include short-term on-site accommodation facilities for up to 62 visiting students and teaching professionals from regional and rural NSW.

The CoE will include five science laboratories, ten general learning spaces, practical activity teaching areas, seminar, botany room, administration block and accommodation facilities. It will also include covered outdoor learning areas, dining / recreation hall, canteen and kitchen, agricultural plots, significant landscaping spaces, car parking and provision of necessary infrastructure.

The proposed development has been designed to be well integrated into the Western Sydney University site, having due regard for scale, bulk and orientation of existing buildings. The educational facilities will display linear open building forms in single story design with open spaces and lightweight construction techniques. The site is benefitted by Blue Mountains views to the west and the building and landscape plans have incorporated viewing opportunities into the design.

Refer to Figure 2 below for the proposed Site Plan.



**Figure 2 – Proposed Site Plan**

## 3.0 Flood Behaviour

### 3.1 Flood Investigation

The proposed Centre of Excellence in Agricultural Education (CoE) is located within the Hawkesbury City Council Local Government Area (LGA).

Flood information relating to The Site has been obtained from the following documents:

- *Hawkesbury Floodplain Risk Management Study & Plan – Volume 3* by Bewsher Consulting Pty Ltd City, December 2012 (Bewsher Flood Study 2012)
- *Flood Impact Assessment Report* by Woolacotts Consulting Engineers dated 28<sup>th</sup> April 2021 (*Flood Impact Assessment Report*)
- *Hawkesbury Nepean Flood Plan – A Sub Plan of the State Emergency Management Plan (EMPLAN)* by NSW State Emergency Service, dated September 2015 (*Hawkesbury Nepean Flood Plan*)
- *Hawkesbury City Local Flood Plan – A Sub Plan of Hawkesbury City Local Disaster Plan (DISPLAN)* by NSW State Emergency Service, dated December 2010 (*Hawkesbury City Local Flood Plan*)

The above documents indicate that The Site is impacted by two sources of flooding, riverine flooding and local overland flooding.

Riverine flooding occurs when heavy rainfall causes the water levels in a river to rise and escape the main channel. Local overland flooding is run-off that travels over the land during heavy rainfall events, affected by urban features such as stormwater infrastructure, roads, fences, walls and other structures.

### 3.2 Flood Extents

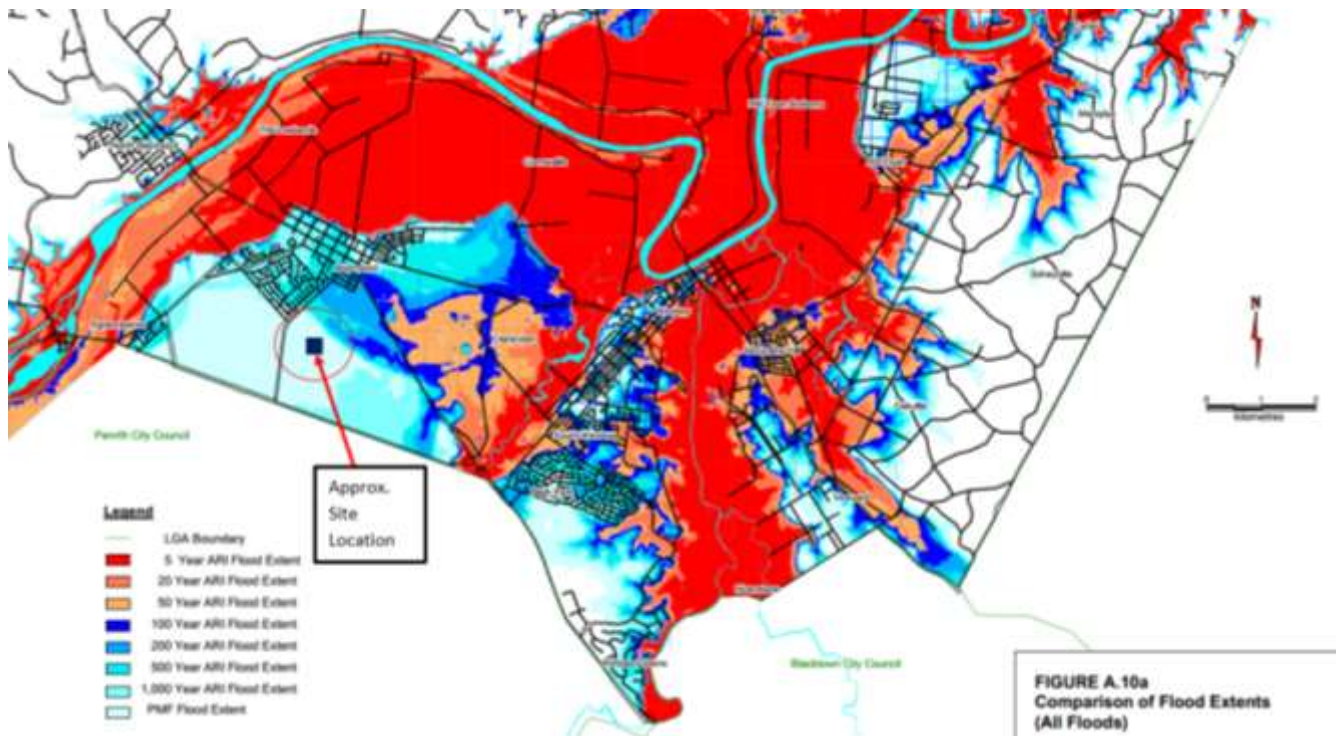
#### Riverine Flooding

Flood mapping from the Bewsher Flood Study 2012 shows that The Site is only impacted by riverine flooding from the Probable Maximum Flood (PMF) event Refer to Figure 3 below for flood extents.

*Note: The PMF is the largest flood that could conceivably occur at a particular location. The PMF defines the extent of the floodplain.*

The peak flood levels from riverine flooding for The Site are 17.5m AHD for the 1% AEP flood event and 26.4m AHD for the PMF event. Site levels generally vary from 23.5m AHD to 22.5m AHD.





**Figure 3 – Flood mapping extract from Bewsher Flood Study 2012**

### Overland Flooding

The *Flood Impact Assessment Report*, shows that The Site is impacted by overland flow flooding from the 1 in 100 year flood event. Refer to Figure 4 below for flood extents.



**Figure 4 – 1% Pre-developed flood mapping extract from Flood Impact Assessment Report**

The flood levels across the site vary from 23.0m AHD to 22.9m AHD during the 1% AEP storm event. Refer to the *Flood Impact Assessment Report* for further information.

## 4.0 Flood Warnings

### 4.1 Official Flood Warnings

The Bureau of Meteorology (BoM) and NSW State Emergency Service (SES) issue a range of official warnings and flood advice through their websites, local radio, television, social media etc. For the BoM, official warnings include:

- **Severe thunderstorm warnings** – Issued when severe thunderstorms are expected. The warnings will describe the area under threat and the associated hazard/s (e.g. flash flooding, high winds)
- **Severe weather warnings** – Issued when severe weather is expected to develop or move into an area. Severe weather includes high winds, heavy rain, abnormally high tides etc.
- **Flood Watch** – A warning that flood producing rain is expected to happen in the near future
- **Flood Warning** – A warning of flooding at a predicted height, time, and location

For the SES, official warnings include:

- **Flood Bulletins** – Provide information on what is expected to happen during a flood and the likely flood consequences. Flood bulletins are distributed to the media who will broadcast information.
- **Evacuation Warning** – Issued when flooding is likely to cut evacuation routes or inundate properties. Once the warning has been issued you should get prepared to evacuate.
- **Evacuation Order** – Issued when you are required to evacuate. The evacuation order advises people of what to do and where to go.
- **All Clear** – Issued when it is safe to return to the site.

Other ways you may be informed of possible flooding is via:

- A door knock by emergency services,
- Word of mouth, or
- The SES may issue an Emergency Alert. An Emergency Alert is a message that is sent to your land line or mobile phone as a voice or text message
- TV, radio and other media

## 4.2 Site Specific Warnings

In addition to the official warnings, it is strongly recommended that The Site adopt the following site-specific warning systems.

### PA system

It is recommended that The Site adopt a public announcement (PA) system with an emergency tone that can be activated during a flood event. The PA system must have a backup power supply that is independent of the electrical grid in case of power failures.

It is also anticipated that this system will be utilised for other emergencies such as fires.

### Warning Signs

Multiple flooding warning signs located throughout The Site to raise flood awareness for building personnel and provide clear direction of what to do during a flood event.

## 4.3 Important Contacts

The following list provides contact details for organisations/personnel who can be contacted during a flood emergency:

### Police, Fire, Ambulance

In life threatening emergencies call 000

### NSW State Emergency Service (SES)

The SES is responsible for the emergency management of floods, storms and tsunami in NSW. The SES can be contacted on 132 500 during a flood event.

### Hawkesbury City Council (HCC)

HCC can be contacted for local flood information on 02 4560 4444

### The Bureau of Meteorology (BOM)

The Bureau of Meteorology (BOM) is the agency responsible for issuing information about rainfall, river levels and flood. For the most up to date information on flood watches and warnings visit the BoM website at <http://www.bom.gov.au/nsw/warnings/>

### NSW Roads and Maritime Services (RMS)

The RMS provides information on road closures due to flooding. The RMS can be contacted on 132 701 or visit the live traffic website.

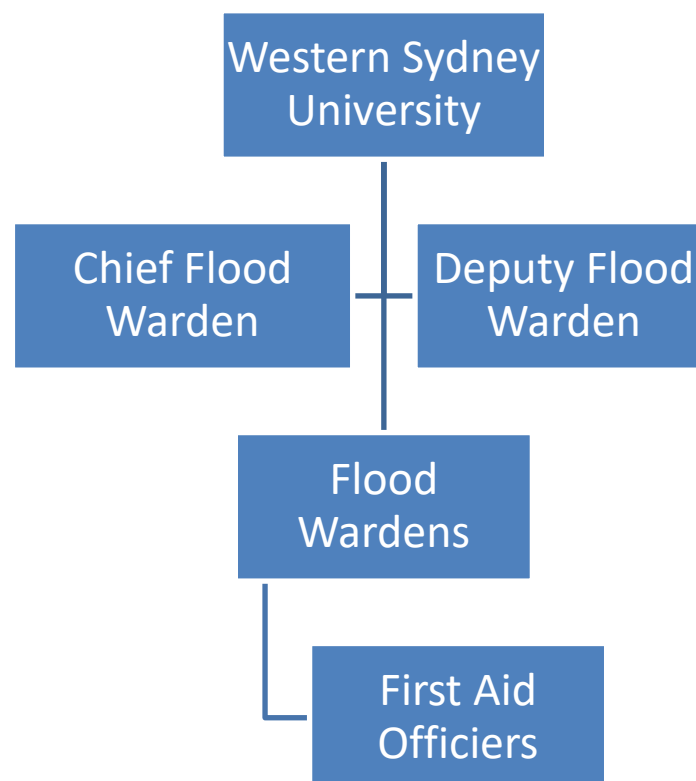
### The Flood Emergency Response Personnel

Includes site specific contact details for the building manager, chief flood warden, deputy flood warden, flood wardens, first aid officer, communications officer etc. Refer Appendix A for a summary list of important contacts. The school is required to fill out Appendix A.

## 5.0 Flood Response Preparation

### 5.1 Flood Preparation & Response Team

To ensure the safety of the occupants of CoE during a flood emergency, a Flood Preparation and Response Team is required. This team will consist of Western Sydney University, a Chief Flood Warden, Deputy Flood Warden, Flood Wardens and First Aid Officers. Refer to Figure 5 below for the organisational structure of this team.



**Figure 5 – Flood Preparation and Response Team**

The Western Sydney University shall appoint the CoE principal as the Chief Flood Warden and also appoint a Deputy Flood Warden from CoE Staff. Once these wardens have been selected the Chief Flood Warden shall seek out assistance from other staff to join the team as Flood Wardens and First Aid Officers.

It is standard industry practice to have 2 fire wardens per 20 people (<https://www.evacservices.com.au/fire-warden-training/>). It is recommended that the same personnel who are fire wardens are also flood wardens.

SafeWork NSW recommends a minimum one first aid officer for every 50 workers. The first aid officers are to assist with minor injuries during the flood evacuation procedure or liaise with emergency services for more serious incidents.

Once the Flood Preparation and Response Team has been established, the Chief Flood Warden shall be responsible for managing the team.

## 5.2 Flood Preparation & Response Team Responsibilities

The role and responsibilities for the members of the Flood Preparation and Response Team is listed in Table 1 below:

Table 1 – Flood Preparation and Response Team Responsibilities	
ROLE	RESPONSIBILITY
Western Sydney University (WSU)	<ul style="list-style-type: none"> <li>▪ Appoint the Principal as the Chief Flood Warden and appoint a Deputy Flood Warden</li> <li>▪ Ensure that the Chief Flood Warden is enacting the Flood Emergency Response Plan</li> <li>▪ Ensure all WSU personnel are made aware of The Site's flood risks</li> </ul>
Chief Flood Warden	<ul style="list-style-type: none"> <li>▪ Brief all flood wardens on the Flood Emergency Management Plan and any changes</li> <li>▪ Monitor weather daily on Bureau of meteorology website</li> <li>▪ Activate commencement of Flood Emergency Management Plan in event of flooding</li> <li>▪ Liaise with emergency services if required</li> <li>▪ Conduct Flood Emergency Response drills annually</li> <li>▪ Ensure the Flood Preparation and Response team is adequately trained</li> <li>▪ Review Flood Emergency Management Plan</li> <li>▪ Conduct flood preparation review as per Table 2 – Flood Preparation Review</li> </ul>
Deputy Flood Warden	<ul style="list-style-type: none"> <li>▪ Undertake Chief Flood Warden's duties in the event that the Chief Flood Warden is away/unavailable</li> <li>▪ Assist Chief Flood Warden in enacting Flood Emergency Management Plan</li> <li>▪ Provide support to the Chief Flood Warden where required</li> </ul>
Flood Wardens	<ul style="list-style-type: none"> <li>▪ Ensure Chief Flood Warden is notified in the event of a flood emergency</li> <li>▪ Receive text messages or emails from the Early Warning Network</li> <li>▪ Assist Floor Flood Wardens in directing all building personnel of their floors to the nominated shelter in place locations and ensuring they remain clam</li> <li>▪ Undertake the required training as instructed</li> <li>▪ Ensure Flood Emergency Kit is up-to-date</li> </ul>

First Aid Officer	<ul style="list-style-type: none"> <li>▪ Implement first aid treatment as required</li> <li>▪ Liaise with emergency services as required</li> <li>▪ Auditing and maintaining the first aid kit and fire extinguishing equipment</li> <li>▪ Assist building personnel with medical conditions and/or mobility restrictions</li> <li>▪ Undertake the required training as instructed</li> </ul>
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### 5.3 Flood Emergency Kit

The NSW SES website provides a list of recommended items in a flood emergency kit, this includes:  
<https://www.ses.nsw.gov.au/floodsafe/prepare-your-home/emergency-kit/>

#### Emergency kit contents:

- Portable radio with spare batteries
- Megaphone
- Torch with spare batteries
- First aid kit (with supplies necessary for the school)
- Candles and waterproof matches
- Important papers including emergency contact numbers
- Copy of the school's Emergency Plans
- Ensure emergency kit is in a waterproof storage container

#### If evacuating the school, place in your emergency kit:

- A good supply of required medications
- The sign in book for visitors
- Any special requirements and supplies for the disabled, infirm and/or elderly
- Fresh food and drinking water

On a regular basis, check your emergency kit (remember to check use-by dates on batteries and gloves) and restock items if you need to. Also, keep a list of emergency numbers in the emergency kit.

## **5.4 Flood Signage**

Flood signage shall be installed around The Site to inform building occupants and visitors of the risk of flooding and provide details on the flood emergency response plan. This signage shall be located in visible areas and include the flood emergency egress plans.

## **5.5 Flood Awareness Training**

To provide flood awareness training for the Flood Preparation and Response Team and all CoE occupants. It is strongly recommended that flood emergency response drills occur a minimum twice annually. This will ensure flood wardens know how to respond in a flood emergency and building personnel are aware of the flood hazard. It is recommended that a drill be conducted first day of term. After the drill has been carried out, the flood emergency response procedure should be reviewed to identify any room for improvement and amended as necessary.

## **5.6 Flood monitoring**

The Chief Flood Warden is to monitor storm activity/weather in the afternoon daily via the BoM website and/or radio. Storm warnings for next day events triggering flash flooding should be monitored carefully. It is up to the discretion of the Chief Flood Warden in consultation with the Western Sydney University to close the Building for the following day if deemed appropriate.

## **5.7 Flood Preparation Review**

The Flood Emergency Management Plan and associated tasks need to be reviewed on a regular basis to ensure their effectiveness. Table 2 below lists the tasks, who is responsible for reviewing them and when the review should occur.



**Table 2 – Flood Preparation Review**

<b>TASK</b>	<b>RESPONSIBILITY</b>	<b>DATE</b>
Review of flood emergency management plan	Chief Flood Warden	<ul style="list-style-type: none"> <li>Annually</li> <li>After a flood event</li> <li>If there are any changes that impact the ability of the plan to be implemented</li> </ul>
Flood Awareness Training	Chief Flood Warden	<ul style="list-style-type: none"> <li>Every 6 months minimum</li> <li>After a flood event for debrief</li> </ul>
Audit and test flood alarm system	Chief Flood Warden	<ul style="list-style-type: none"> <li>Every 6 months minimum</li> <li>After a flood event for debrief</li> </ul>
Audit, maintain and test emergency electrical lighting	Electrical contractor under the supervision of Chief Flood Warden	<ul style="list-style-type: none"> <li>Annually</li> <li>After a flood event - if problems occurred</li> </ul>
Audit and maintain flood emergency kit	Flood Wardens	<ul style="list-style-type: none"> <li>Every 6 months</li> <li>After a flood event for re-stocking</li> </ul>
Audit and maintain first aid kit	First Aid Officer	<ul style="list-style-type: none"> <li>Every 6 months</li> <li>After a flood event for re-stocking</li> </ul>
Audit and maintain fire fighting equipment	Floor Fire Warden	<ul style="list-style-type: none"> <li>Every 6 months</li> <li>After a fire event</li> </ul>
Check for Flood Study updates	Chief Flood Warden	<ul style="list-style-type: none"> <li>Annually: Contact City of Hawkesbury City Council for any updates to the Flood Study</li> </ul>



## 6.0 Flood Emergency Response Plan

### 6.1 Flood Response

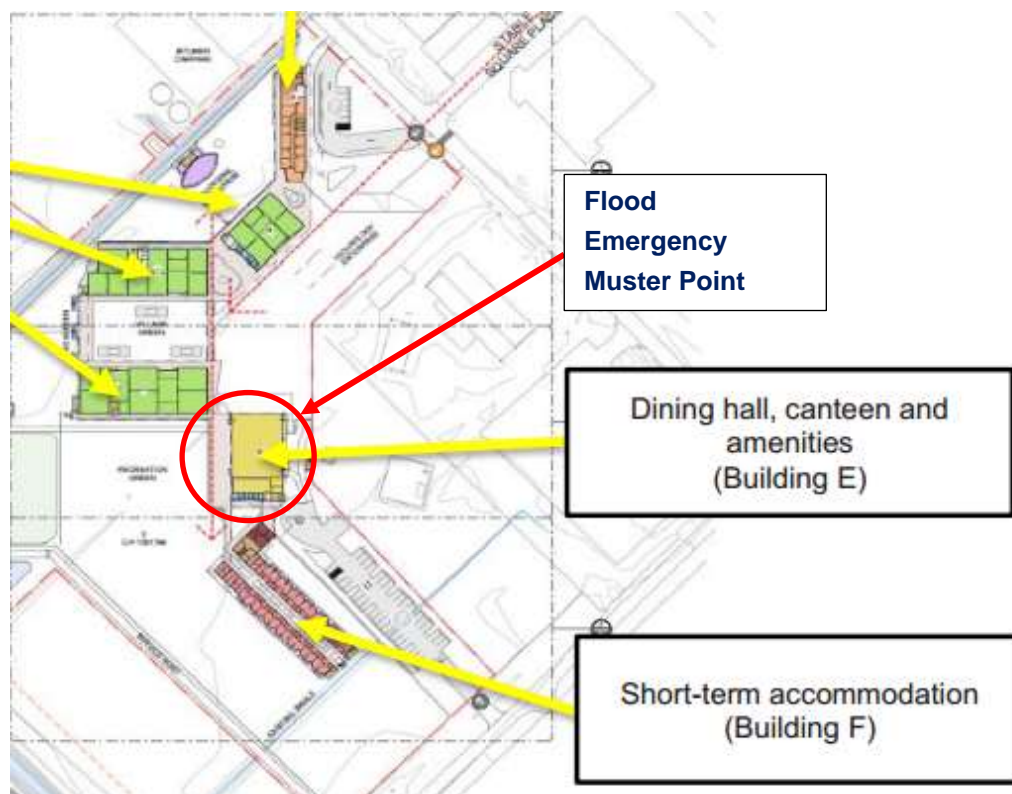
The two main responses to a flood emergency include evacuation or Shelter in Place. Evacuation involves moving to an area that is outside the reach of floodwaters, while Shelter in Place refers to staying within the building until floodwaters have receded and it is safe to leave.

Shelter in place is only possible if the proposed “shelter” is located above the PMF level of 26.4m AHD. Given The Site is single storey with a proposed FFL (23.6m AHD) 2.8m below the PMF flood level, Shelter in Place is not considered a feasible option. Therefore, an evacuation response is required.

### 6.2 Emergency Muster Point

It is proposed to use the Dining Hall / Conference (Building E) and adjacent COLA as the flood Emergency Muster Point. Refer to Figure 6 below.

This location has been proposed for three reasons. Firstly, the muster point must be large enough to accommodate the total number of site personnel, which is 450 (325 students, 25 staff, 100 visitors (including 62 accommodation)). Secondly, the muster point must be open enough so that it is easy to communicate and account for all personnel. Thirdly, it will most likely be raining at the time that the flood emergency alarm will be activated, and it is preferable to have a covered area for people to congregate.



**Figure 6 – Flood Emergency Muster Point**

## 6.3 Flood Evacuation Strategy

Woolacotts liaised with the SES Principal Advisor of the Hawkesbury Nepean Taskforce (SES Advisor) on Monday the 26<sup>th</sup> of April 2021. The SES advisor provided the following advice:

### Flood Information

- During a flood event from the Hawkesbury Nepean River, it takes approximately 1.5 to 3 days to reach flood depths requiring evacuation
- Floodwaters from the Hawkesbury Nepean River typically rise at 0.5m/hr up to a maximum of 0.7m – 0.8m/hr
- The SES provide flood warning updates every 3 hours
- It takes 12 to 15 hours to predict any flood height. The prediction is based on the forecasted rainfall
- It is approximated that the Richmond area will lose power when Hawkesbury Nepean River reaches a flood depth of 15m to 17m AHD
- Approximately 80% of personnel requiring evacuation shelter go to family and friends and 20% go to evacuation centres

### Flood Evacuation Routes / Centres

- During a flood event from the Hawkesbury Nepean River, the two main evacuation routes out of Richmond Sector by vehicle (car, bus etc.) are Castlereagh Road (Primary Evacuation Route) and Londonderry Road (Secondary Evacuation Route). Refer to Appendix B for the Hawkesbury Nepean Flood Evacuation Route Map extracted from the *Hawkesbury Nepean Flood Plan*.
- Castlereagh Road (Primary Evacuation Route) is no longer usable when riverine floodwaters reach a depth of 20m AHD and Londonderry Road (Secondary Evacuation Route) is no usable when riverine floodwaters reach a depth of 18m AHD. Refer *Hawkesbury City Local Flood Plan* for further information.
- Londonderry Road may experience local overland flow flooding. However, the overland flow flooding along this road is classified as H1 during the 1% AEP flood event, meaning that it is still safe to drive through. This type of flooding is short term and recedes in approximately 30 to 60 minutes. Additionally, traffic management services monitor this evacuation route and signage, and warning signs will be provided along the route during a flood event.
- The railway line from Richmond Station is no longer usable when riverine floodwaters reach a depth of 12.5m to 13.5m AHD
- Once floodwaters exceed a depth of 20m, the last evacuation mode out of Richmond is by aircraft

- The flood evacuation centre for riverine flooding for the Richmond area (also known as the mass care facility) is located at Sydney Olympic Park. Sydney Olympic Park has its own train station

### **Site Specific Flood Evacuation Advice**

- Once confirmation is received that riverine flooding is occurring, it is recommended that the school should close.
- It is recommended that the students who travelled via bus, use their normal morning and afternoon bus service to evacuate
- It is recommended that the students who travelled via bus, use their normal morning and afternoon bus service to evacuate
- The SES will organise buses, in coordination with Transport for NSW, where none are available
- The school will lose power when the Hawkesbury Nepean River reaches a flood depth of approximately 15m to 17m AHD. It is recommended evacuation occurs before the school loses power

## **6.4 Flood Evacuation Procedure during school hours**

The following evacuation procedure should be adopted and implemented by the Department of Education for the school. It should also be incorporated into the Western Sydney University (WSU) Emergency Management Plan.

### **1. Flood Alert / Warning**

If a flood warning is received from BoM or SES, the Chief Flood Warden shall monitor the situation and shall liaise with Western Sydney University's Chief Flood Warden.

### **2. Activate Flood Emergency Alarm**

Once confirmation is received that riverine flooding is occurring, the Chief Flood Warden shall activate the Flood Emergency Alarm, which includes an emergency tone. Noting that activation of the alarm shall be occurring well before the Hawkesbury Nepean River is predicted to reach a flood depth of 12.5m to 13.5m AHD.

### **3. Evacuation to Emergency Muster Point**

Once the Flood Emergency Alarm has been activated, all personnel on the CoE site are to make their way to the Emergency Muster Point (Dining Hall / Conference (Building E) and adjacent COLA) under the direction of the Flood Wardens. The Flood Wardens shall ensure everyone on the campus is accounted for and aware of the situation. The Flood Wardens shall ensure that nobody leaves The Site.

#### **4. Confirm Occupancy Numbers**

Once everyone is in the nominated Emergency Muster Point the Flood Wardens shall obtain the names of all the occupants within the muster point and ensure that everyone is accounted for.

#### **5. SES Contact and confirm personnel numbers**

While everyone is making their way to the Emergency Muster Post, the Chief Flood Warden along with Western Sydney University, shall contact the SES and inform them of the situation. The SES shall offer any assistance that is required. The Chief Flood Warden shall also inform the normal bus services of the situation.

Once personnel numbers have been confirmed by the Flood Wardens and the Chief Flood Warden is satisfied that everyone is accounted for, the Chief Flood Warden, with help from Western Sydney University, shall begin evacuation.

#### **6. Evacuation from Emergency Muster Point**

##### **Personnel who travelled via bus**

Site personnel who travelled by bus are to wait for their normal bus services as coordinated with the Flood Wardens. The buses are to use the nominated flood evacuation routes of either Castlereagh Road (Primary Evacuation Route) or Londonderry Road (Secondary Evacuation Route). Noting that at the time of evacuation the Hawkesbury Nepean River shall be well below the flood depth of 12.5m to 13.5m AHD at which point in time both roads are usable. The personnel who travelled via bus are to be taken to the flood evacuation centre at Sydney Olympic Park or to a location outside of the Hawkesbury Nepean River flood extents (whether that be their house, a friend's house, or the house of another family member).

##### **Personnel who travelled via car**

Site personnel who travelled by car are to use the nominated flood evacuation routes of either Castlereagh Road (Primary Evacuation Route) or Londonderry Road (Secondary Evacuation Route) as coordinated with the Flood Wardens. Noting that at the time of evacuation the Hawkesbury Nepean River shall be well below the flood depth of 12.5m to 13.5m AHD at which point in time both roads are usable. The personnel who travelled via car are to drive to the flood evacuation centre at Sydney Olympic Park or to a location outside of the Hawkesbury Nepean River flood extents (whether that be their house, a friend's house, or the house of another family member).

##### **Personnel who travelled via train**

Site personnel who travelled by train are to catch a bus service to the flood evacuation centre at Sydney Olympic Park as coordinated by the Flood Wardens (noting that the railway line from Richmond Station is no longer usable when riverine floodwaters reach a depth of 12.5m to 13.5m AHD). Sydney Olympic Park has its own train station where personnel can travel to a location outside of the Hawkesbury Nepean River flood extents (whether that be their house, a friend's house, or the house of another family member) or remain at the evacuation centre.

### Personnel who travelled by other means

Site personnel who travelled by other means such as walking or cycling are to catch a bus service as coordinated with the Flood Wardens. The bus is to travel to the flood evacuation centre at Sydney Olympic Park or to a location outside of the Hawkesbury Nepean River flood extents (whether that be their house, a friend's house, or the house of another family member).

## **7. Closing the School**

Once all personnel are evacuated from the site. The school shall be closed until notified by the SES that it is safe to reopen.

## **6.5 Flood Evacuation Procedure outside school hours**

For personnel on site outside of school hours (such as those living on campus in the accommodation blocks) the flood evacuation procedure shall follow the one specified in Section 6.4 above.

Provided flood height predictions are given 12 to 15 hours before the Hawkesbury Nepean River is predicted to reach a flood depth of 12.5m to 13.5m AHD, night-time evacuation can potentially be postponed until the morning. **However, this must be confirmed with the SES when a flood warning is received.**

Once confirmation is received that riverine flooding is occurring, the School must be closed, and staff and students notified. The school is to remain closed until notified by the SES that it is safe to reopen.

## **Appendix A**

### **Important Phone Numbers**

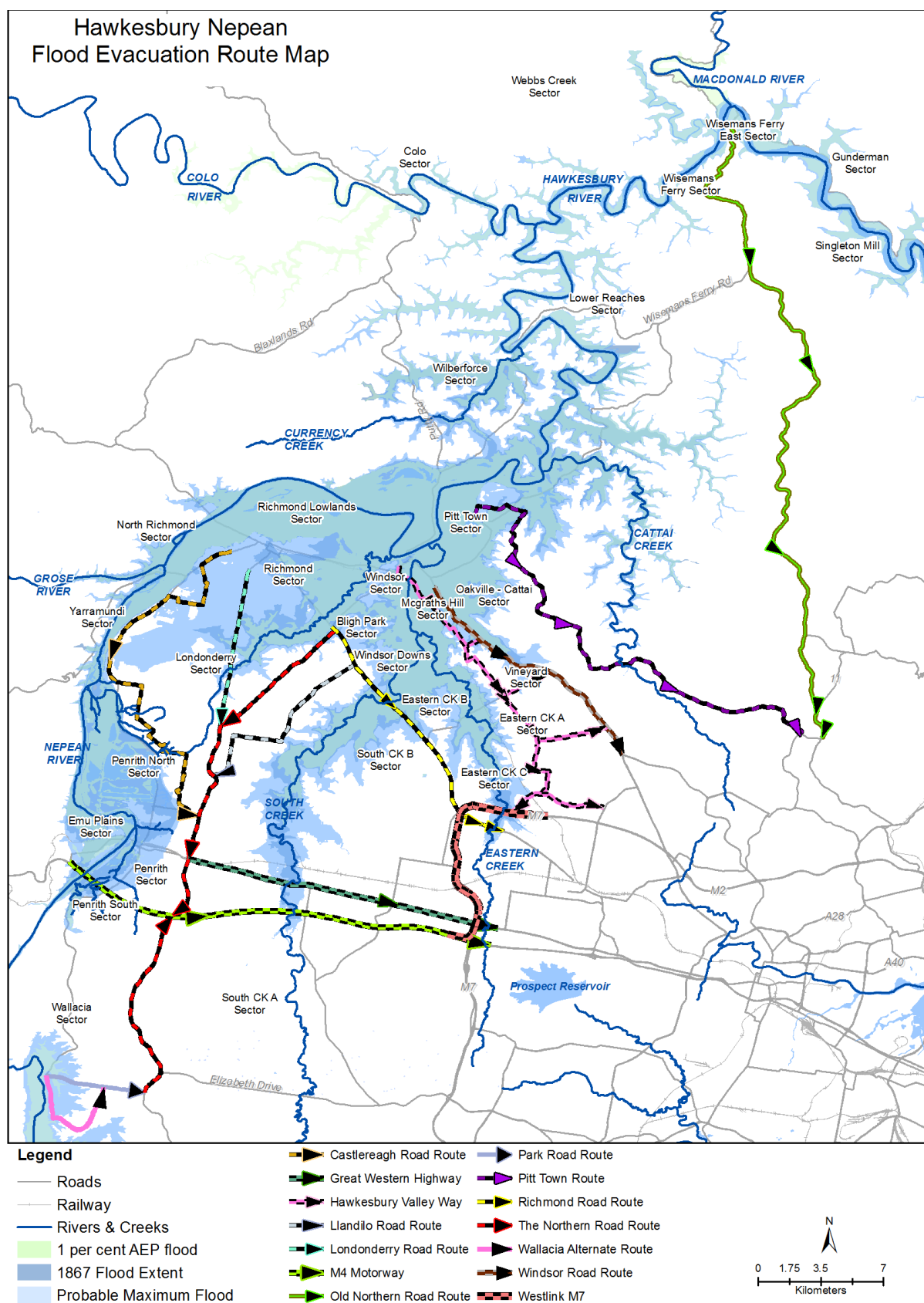
EMERGENCY NUMBERS	
Emergency Contact	Number
Police, Fire or Ambulance	000
NSW State Emergency Service	132 500
Hawkesbury City Council	02 4560 4444
NSW Roads and Maritime	132 701

SCHOOL STAFF NUMBERS (TO BE FILLED OUT BY SCHOOL)		
Role	Contact Name	Number
WSU Contact		
Chief Flood Warden		
Deputy Flood Warden		
Flood Warden 1		
Flood Warden 2		
Flood Warden 3		
First Aid Officer		

## **Appendix B**

# **Flood Evacuation Routes**





**Map 1: Regional Evacuation Routes within the Hawkesbury-Nepean Valley**